UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,962	08/16/2000	Wilhelm Frank	GR 97 P 2065 D	6118

7590 06/17/2003

Lerner and Greenberg PA
Post Office Box 2480
Hollywood, FL 33022-2480

EXAMINER
DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 503

Application Number: 09/639,962
Filing Date: August 16, 2000
Appellant(s): FRANK, ET AL.

Markus Nolff

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/17/03.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-9 stand or fall together as appellant's brief notes.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) References

USP 5,239,223	Miyoshi	08-1993
USP 4,958,100	Crawley et al.	09-1990
JP 55-134990	Onishi	10-1980

USP 4,354,131	Kaji	10-1982
USP 4,943,004	Takahashi	07-1990

(10) Grounds of Rejection

Claims 1 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) in view of Crawley et al. (US 4,958,100).

Miyoshi shows (fig. 2) a piezoelectric (cl. 1) assembly, comprising an elastic hollow body (5) with an elasticity; a top cover plate (3) connected to said hollow body by one of welding (col. 4, ll. 30-34) and flanging, and a bottom cover plate (6) connected to said hollow body (5); and a piezoelectric actuator with a permanent and fixed prestress (col. 5, ll. 23-34 and col. 7, ll. 15-37). He does not show his piezoelectric actuator being contacted by said hollow body.

Crawley et al. show (e.g. fig. 3a) a piezoelectric (see title) assembly, comprising: an elastic hollow body (not numbered) with an elasticity (figs. 5A-5C); a top cover plate (51a) connected to said hollow body, and a bottom cover plate (51b) connected to said hollow body; and a piezoelectric actuator (52) with a permanent and fixed prestress, see col. 2, ll. 11-19 where it is noted that the "cylindrical outer shell of composite material which tightly surrounds an inner shell consisting of one or more piezoelectric elements" implicitly indicates that the piezoelectric actuator has a prestress, as the shell and the piezoelectric each have specific properties such that prestress will remain the same, e.g. except for plastic deformation, or other catastrophic event concerning the shell or piezoelectric, the stress has to remain the same. Said piezoelectric actuator being

contacted by said hollow body, said top cover plate, and said bottom cover plate. The elasticity of the hollow body is matched to a desired manner of operation of said piezoelectric assembly. See for example figures 5A-5C. Said piezoelectric body has an extension direction and is inserted into said hollow body in said extension direction between said cover plates for prestressing said actuator. Note at col. 4, ll. 36-40 that Crawley states that his stack elements are prestressed by explicitly stating "Threaded connectors 55 are affixed to the tube to allow the end caps 51a, 51b to be screwed down into a load-transmitting position, and to **force-bias the stack elements in compression**." Prestress of said piezoelectric actuator corresponds with said elasticity of said hollow body. Said piezoelectric actuator has a shape and said hollow body is matched in shape to said shape of said piezoelectric actuator.

Crawley et al. don't show connection of the hollow body by one of welding and flanging. It would have been obvious to one having ordinary skill in the art to connect the hollow body of Crawley by one of welding or flanging, as is taught by Miyoshi in order to prevent unintentional loosening of the fit.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi (JP 55-134990) in view of Crawley et al. (US 4,958,100).

Given the invention of Crawley as noted above, he doesn't show a seamed hollow body.

Onishi shows (figs. 2 and 3) a piezoelectric (see ABSTRACT) assembly, comprising: an elastic hollow body (6) with an elasticity; a top cover plate (4) connected to said hollow body by one of welding and flanging (6e), and a bottom cover plate (5)

connected to said hollow body (6), note that without the flange, held in place by 6e of the insulating case, both 4 and 5 would simply fall out. The **flanges are clearly integral with 4 and 5**, **and they fix, i.e. hold in place, these components**. Note that the Webster's Ninth New Collegiate Dictionary defines a flange as "a rib or rim for strength, for guiding or for attachment to another object." The flange components of 4 and 5 are rims for attachment to the insulating case. He further shows a piezoelectric actuator (1, 1'), said piezoelectric actuator (1, 1') being contacted by said hollow body (6), said top cover plate (4), and said bottom cover plate (5). Said hollow body (6) has a given length, two butting edges (of 6a, 6b) and at least one connecting seam (see translated PURPOSE and CONSTITUTION) connecting said two butting edges to one another and extending entirely over said given length. Said hollow body (6) is made of at least one plate (6a, 6b) formed into said hollow body (6) and then fixed by at least one connecting seam. While the element is under stress, the form it takes is not explicit. It would have been obvious to one having ordinary skill in the art to employ the casing design of Onishi in the device of Crawley et al. at the time of his invention since this is clearly a way to insure insulation in the device as Onishi notes. Such a design would reduce the likelihood of unintentional and undesirable short circuits due to particulate matter.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) and Crawley et al.(US 4,958,100) in view of Kaji (US 4,354,131) or Onishi (JP 55-134990) and Crawley et al.(US 4,471,256) in view of Kaji (US 4,354,131).

Given the combined invention of Miyoshi and Crawley as noted above, or alternatively the combined invention of Onishi and Crawley as noted above, they do not show their hollow body with two butting edges associated with one another and disposed in the longitudinal direction, wherein the butting edges are not connected to one another.

Kaji shows (figs. 1 and 2) a piezoelectric (col. 3, ll. 37-39) assembly, comprising: an elastic hollow body (49). He further shows said hollow body (49) having a longitudinal direction and two butting edges associated with one another and disposed in said longitudinal direction, said butting edges not being connected to one another. He does not show a top cover plate connected to said hollow body, or a bottom cover plate connected to said hollow body. His piezoelectric actuator does not have an extension direction, said actuator is not inserted into said hollow body in said extension direction between said cover plates for prestressing.

It would have been obvious to one having ordinary skill in the art to employ a hollow body such as is shown by Kaji in a combined device like Miyoshi's and Crawley's, or alternatively, like Onishi's and Crawley's, at the time of their inventions, in order to allow for electrical connections through the gap created by the two non-connected butting edges in the housing such as is taught by Kaji at column 4, lines 37-45.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) and Crawley et al.(US 4,958,100) in view of Takahashi (US 4,943,004)

or Onishi (JP 55-134990) and Crawley et al.(US 4,471,256) in view of Takahashi (US 4,943,004).

Given the combined invention of Miyoshi and Crawley as noted above, or alternatively the combined invention of Onishi and Crawley as noted above, they do not show their hollow bodies with apertures which at least partially determine an elasticity of said hollow bodies.

Takahashi shows (fig. 1) a piezoelectric (cl. 1) assembly, comprising: an elastic hollow body (32); a top cover plate (32a) connected to said hollow body (32), and a bottom cover plate (41) connected to said hollow body (32); and a piezoelectric actuator (33). His hollow body (32) has apertures (40) which at least partially determine an elasticity (col. 3, ll. 8-12) of said hollow body (32). It is not clear that Takahashi connects his top cover plate by one of welding and flanging.

It would have been obvious to one having ordinary skill in the art to secure the hollow body of Takahashi to his cover plates by welding since this is a known method of securing components as is taught by Miyoshi, or by flanging, such as is taught by Onishi, and the still allows for the piezoelectric actuator to be caused to expand and/or contract within the housing. Additionally, welding and/or flanging are easy manufacturing methods.

(11) Response to Argument

The Applicants' arguments stress the connection of the hollow body and the cover by "one of welding and flanging" at p. 17, lines 1 and 2 of the Appeal Brief. This feature of the claimed invention had been rejected by the Onishi and Miyoshi references

since the first office action but this Appeal Brief is the first time that the Applicants have argued the against the efficacy of applying them to this feature.

Additionally, note in the Applicants' Summary of the Invention at page 2, lines 19 and 20, that connection between the hollow body and the top cover plate is made by "one of welding and flanging". However they provide no description of a marked advantage of this method of connecting. The general characteristics, advantageous or disadvantageous, of using welding in preference to using a threaded connection are no where discussed or enumerated by the Applicants in their disclosure.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

tmd
June 3, 2003

Conferees
Olik Chaudhuri OC
Nestor Ramirez NR

Werner H. Stemer
Lerner and Greenberg PA
Post Office Box 2480
Hollywood, Florida 33022-2480